

REMARKS

Claims 6 and 7 are cancelled without prejudice or disclaimer. Claims 1 is currently being amended for the purposes of expediting the prosecution of the current application. Applicant reserves the right to seek patent coverage for the subject matter of the original claims, prior to the current amendment, thereof in a further patent applications that may be filed based on the present application. Thus, claims 1-5 and 8-10 are now pending.

Claims 1-10 were rejected under 35 U.S.C. § 112, first paragraph. According to the outstanding Office Action the claims fail to disclose the combinations of elements for the underlayer and overlying thin film. In response, claim 1, as amended, includes the subject matter of original claims 6 and 7.

Specifically, subject matter of original claim 6 now included in independent claim 1, recites a thin film made of a $RE_{1+x}Ba_{2-x}Cu_3O_{7-y}$ (Sm 123) based superconductor; wherein RE represents at least one kind of rare earth elements. Similarly, the subject matter of original claim 7 now included in independent claim 1, recites the underlayer made of $BaZrO_3$. Since claim 1, as amended, recites the combination of elements that compose the underlayer and the overlying thin film, claim 1 is believe to be in compliance with 35 U.S.C. 112, first paragraph. Dependent claims 2-5 and 8-10 are believed to be in compliance with the requirements of 35 U.S.C. 112, first paragraph, for at least the same reasons indicated above with regard to independent claim I from which they depend.

Claims 1-10 are rejected under 35 U.S.C. 102 (b) as being anticipated by Hasegawa et al. ("Preparation of $SmBa_2Cu_3O_y$ Films with Improved In-plane Alignment by Pulse Laser Deposition") (hereinafter Hasegawa). This rejection is moot with regard to cancelled claims 6 and 7. With regard to independent claims 1 and other dependent claims 2-5 and 8-10, as amended herein, the rejection is respectfully traversed.

In particular, it is respectfully submitted that a Sm123 thin film with at least 0.1 μm thickness is neither disclosed nor suggested in the Hasegawa reference.

The amendments to independent claim 1 are supported by the applicants' specification as filed at page 11, line 11 to page 12, line 12, and by applicants' figures 7 and 8. The features allow for the thickness of the Sm 123 film to be at least 0.1 μm . Such feature are not

found in the Hasegawa reference. Furthermore, when the Sm123 film is on the BZO (BaZrO_3) underlayer that is as thin as $0.1 \mu\text{m}$, its critical current density (J_c) is considerable improved when compared to that of the Sm123 film on the MgO underlayer. Fig. 7 also shows the Sm 123 film on the MgO under layer in the Sm 123 film's thickness range from $0.1 \mu\text{m}$ and greater.

Instead Hasagawa fails to describe a Sm123 thin film at least $0.1 \mu\text{m}$ thick. Hasagawa on discloses a Sm123 type structure of 0.388 nm (in a-axis) equaling $.000388 \mu\text{m}$, 1.174 nm equaling $0.001174 \mu\text{m}$ (in c-axis) (Hasegawa page 3 line 18-19, page 6 lines 7-9) . The thickness that is disclosed by Hasegawa is well over 100 times smaller than what is recited in amended claim 1.

Therefore, independent claim 1, as amended, is neither disclosed nor suggested by the Hasegawa reference.

Conclusion:

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

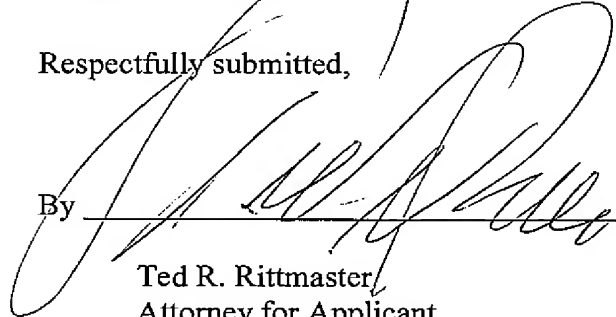
If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date

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By



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